

A NEW SPECIES OF *PONTELLOPSIS* (COPEPODA,
CALANOIDA) FROM MORETON BAY, QUEENSLAND

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ABSTRACT

A new species, *Pontellopsis tasmanensis* sp. nov., found in coastal waters of eastern Australia is described and figured, and the relationship of this to allied species is discussed.

A study of the zooplankton of Moreton Bay, Queensland (Greenwood 1976) revealed the presence of males and females of a species of *Pontellopsis* which could not be allocated to any known species and which is described here.

All specimens were collected with either Clarke-Bumpus or 40 cm diameter conical nets of nylon mesh with an aperture size of 195 microns. Dissections were made in polyvinyl alcohol lightly stained with chlorazol black, and drawings made with the aid of a Wild M20 drawing tube.

***Pontellopsis tasmanensis* sp. nov.**
(Figs 1 a-j, 2 a-f)

MATERIAL EXAMINED

HOLOTYPE: Queensland Museum, W5201, ♂, Rainbow Channel, Moreton Bay (27° 20'S., 153° 15'E.), SE.Q., coll. 8. vii. 1964, J. G. Greenwood (Station 1 of Greenwood 1976).

ALLOTYPE: W5202, ♀, same data as Holotype.

PARATYPES: W5203, 5♂♂, 5♀♀, same data as Holotype.

P. tasmanensis was taken on 45 occasions during 1963-66 from Rainbow Channel, central Moreton Bay, and Cleveland Channel (Stations, I, II, and III of Greenwood 1976). Males were taken on 25 occasions, females on 29 occasions, males with females on 9 occasions. Material other than the type series was examined in less detail and discarded.

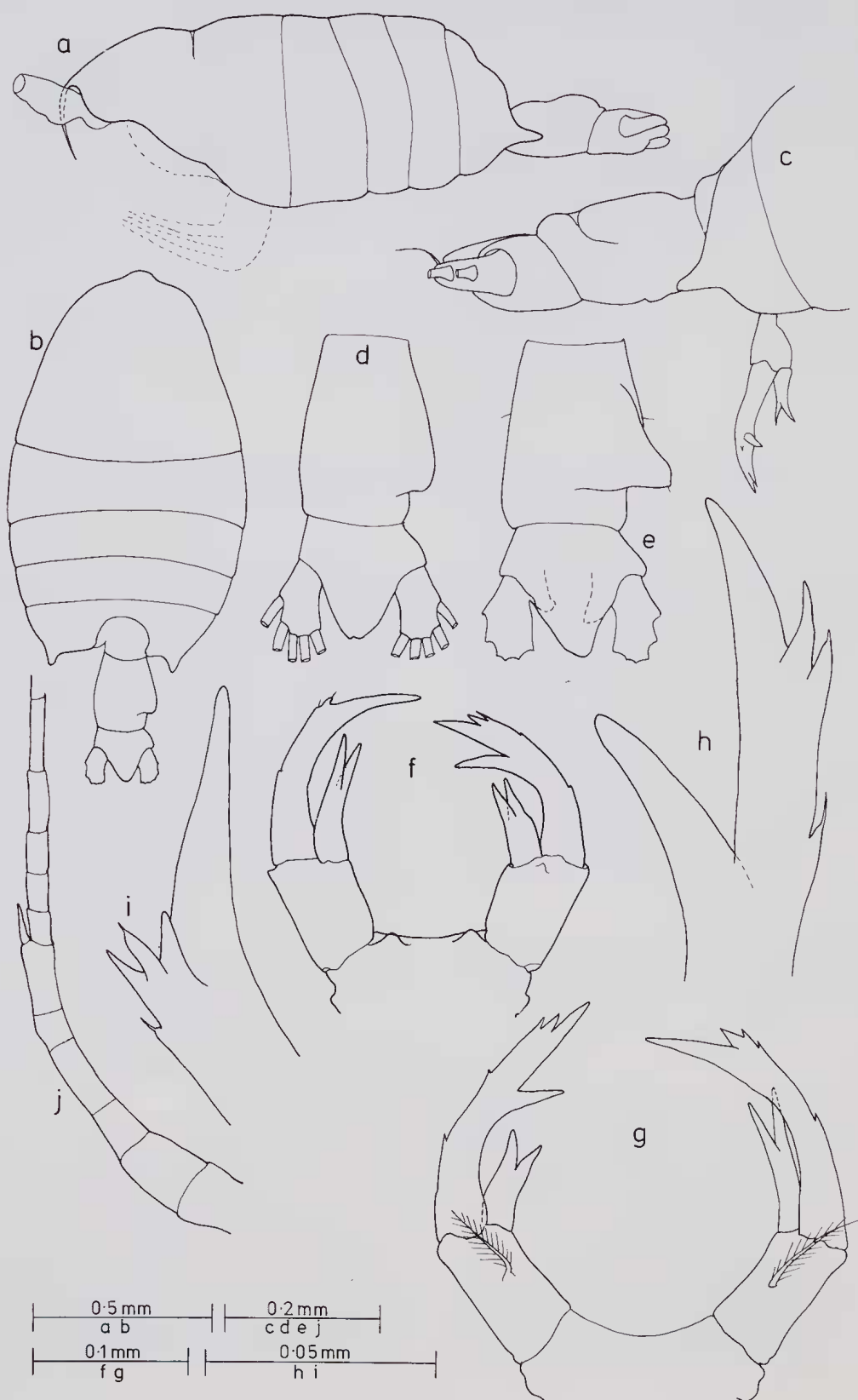
DESCRIPTION OF FEMALE (Fig. 1)

Body very robust. Total body length varying between 1.42-1.69 mm (av. 10 individuals 1.56 mm). Length ratio of metasome to urosome 2.98:1; metasome length to width ratio 1.62:1.

Metasome with fourth and fifth thoracic segments fused; posterior margins of fifth segment produced symmetrically into small rounded posterolateral processes. (Fig. 1 a, b, c).

Urosome two-segmented, genital segment approx. 1.47 times length of anal segment. Genital segment asymmetrical, right postero-dorsal region produced into rounded or broadly triangular lobe (Fig. 1 d, e) which extends laterally to maximum distance at level of posterior third of segment. This lobe truncated abruptly posteriorly, at right angles to body axis. Degree of development of this lobe shows some variability. Most individuals as in Fig. 1 d, but others with larger lobes, to the maximum found as in Fig. 1 e. Forms with larger lobes sometimes with a small seta at tip of lobe and similar small seta on mid-ventro-lateral surface. No other spines or projections present on genital segment. Anal segment produced postero-dorsally into large, slightly asymmetrical triangular supra-anal plate reaching to posterior level of furcal rami (Fig. 1 d, e). Furcal rami symmetrical, length c. twice width.

Fifth legs asymmetrical (Fig 1 f, g). Right exopod with stout spine developed from inner border slightly distal to midpoint, not reaching end of ramus; corresponding spine absent from left exopod. Both exopods terminate in single point. Right exopod (Fig 1 h) with two subterminal spines on outer border, the more distal the larger; two minute spinules spaced more proximally along outer border. Left exopod (Fig 1 i) with cluster of three subterminal spines, two forming lateral borders of small plate on which third is mounted;



two minute spinules more proximally along outer border, first being just proximal to the 'plate'. Endopods similar, bifid terminally, but left endopod narrower and longer, about 1.3 times length of right endopod.

DESCRIPTION OF MALE (Fig. 2)

Body very robust. Total body length varying between 1.28–1.54 mm (av. 10 individuals 1.36 mm). Length ratio of metasome to urosome 2.58:1, metasome length to width ratio 1.96:1.

Metasome with fourth and fifth thoracic segments fused; posterior margins of fifth segment rounded on left side, right side produced as elongate spine-like process reaching to mid or posterior border of fourth urosomal segment (Fig. 2 a, b).

Urosome five-segmented, segments 1–5 in proportions 40:15:17:12:16 (total 100).

Genital segment symmetrical, with single small seta on right postero-lateral margin (Fig. 2 c). Second segment with patch of minute tubercles on right postero-lateral surface. Third segment slightly asymmetrical, slightly swollen on right side, apex of swelling with minute tubercles. Fourth and fifth segment without spines or tubercles.

Fifth legs as figured (Fig 2 d, e, f). Right leg with thumb-like process from base of proximal exopod segment (Re1) similar in length to finger-like distal exopod segment (Re2) thumb slightly expanded or spatulate distally; large seta on Re1 distal to base of thumb. Re2 with excavated lateral surface bearing one larger, one smaller seta; small terminal, longer subterminal seta; minimum distance between origins of thumb and finger similar to length of segment. Left leg with distal protopod segment (B2) and Re1 of similar length. Disto-lateral margin of Re1 with stout spine extending c. two-thirds length Re2. Re2 short, c. half length Re1; length twice width; lobe on medial face clothed with fine setae; one long one short seta terminally.

REMARKS

During much of the survey in which these specimens were taken, the male and female forms described here were regarded as belonging to different species, the male being provisionally related to *P. tenuicauda* and the female regarded as a new form related, by structure of the fifth legs particularly, to *P. macronyx*, *P. scotti* and

P. tenuicauda. Subsequent realisation of the coincidence in frequency and occurrence pattern of these two strongly suggested conspecificity. There were, for example, no female *P. tenuicauda* yet the apparent males occurred on 25 occasions. More detailed examination of the two forms showed some differences between these males and those of *P. tenuicauda* as described by Mori (1937), and considerable differences between the present females and those of *P. tenuicauda sensu* Mori (1937), and particularly *sensu* Giesbrecht 1892 (from which Mori's also show differences). Designation of the new species was therefore necessary.

Both male and female share some characteristics with several related species, but are distinguished from them on combinations of features. These distinguishing features are discussed below, firstly for females, subsequently for males.

FEMALES: The asymmetrical fifth legs of female *P. tasmanensis* show some resemblance to those of the following species: *P. pexa* Scott, *P. yamadae* Mori, *P. macronyx* Scott, *P. scotti* Sewell, *P. tenuicauda* (Giesbrecht):

P. pexa differs in that the right exopod there terminates in three small spines, not a single point, and although a spine is developed from the inner border it arises distally and extends well beyond end of the ramus (Scott 1909; p 173, pl. 54 fig. 14).

General body form is similar to that of *P. yamadae*, but although the female fifth legs of that species are asymmetrical they differ from the present form in having one (or more) large inner spines from both exopods (Mori 1937, p. 98, pl. 47 fig. 6; pl. 48 fig. 13. Brodsky 1962, p. 147, pl. 48). *P. yamadae* is also a much larger calanoid (2.8 mm, Mori 1937; 2.45 mm, Brodsky 1962).

Form of the fifth leg is very close to that of *P. macronyx* and *P. scotti*. However in those species the endopods are of similar length and the exopods are not (reverse of *P. tasmanensis*), the right exopod being shorter than the left (Scott 1909, p. 173, pl. 54 fig. 6; Sewell 1932, p. 388, fig. e). *P. macronyx* further differs in armature of the genital segment, which has paired dorso-lateral spines both anteriorly and posteriorly, in having a smaller anal plate, and it is a slightly larger copepod (1.73–1.97 mm), (Scott

FIG. 1. *Pontellopsis tasmanensis* sp. nov., female. a, lateral view; b, dorsal view; c, Th5 and urosome with P5 *in situ*, lateral view; d, urosome with typical development of genital segment; e, urosome with maximal development of genital segment (as in 'e' above); h, detail of terminal region right P5 exopod; i, detail terminal region left P5 exopod; j, proximal portion of right antennule.

1909; Sewell 1932; Kasturirangan 1963). *P. scotti* differs additionally in having: an elongate anal segment without extended anal plate, and on which the furae are set asymmetrically; paired lateral spines anteriorly on the genital segment, the posterior end variously developed but typically with a swelling on the left side (elongate in some), some with rod-like spine on right side (Sewell 1932, fig 129a).

Closest similarity in fifth leg structure is with *P. tenuicauda*. However in that species the genital segment does not develop a bulbous postero-lateral projection, having instead two lateral spines on the right side (some variability is apparent in development of these spines, cf. Giesbrecht 1892, pl. 41 fig. 43, and Mori 1937, pl. 46 fig. 8). *P. tenuicauda* also has a small anal plate (not reaching mid-region of furae), and very small

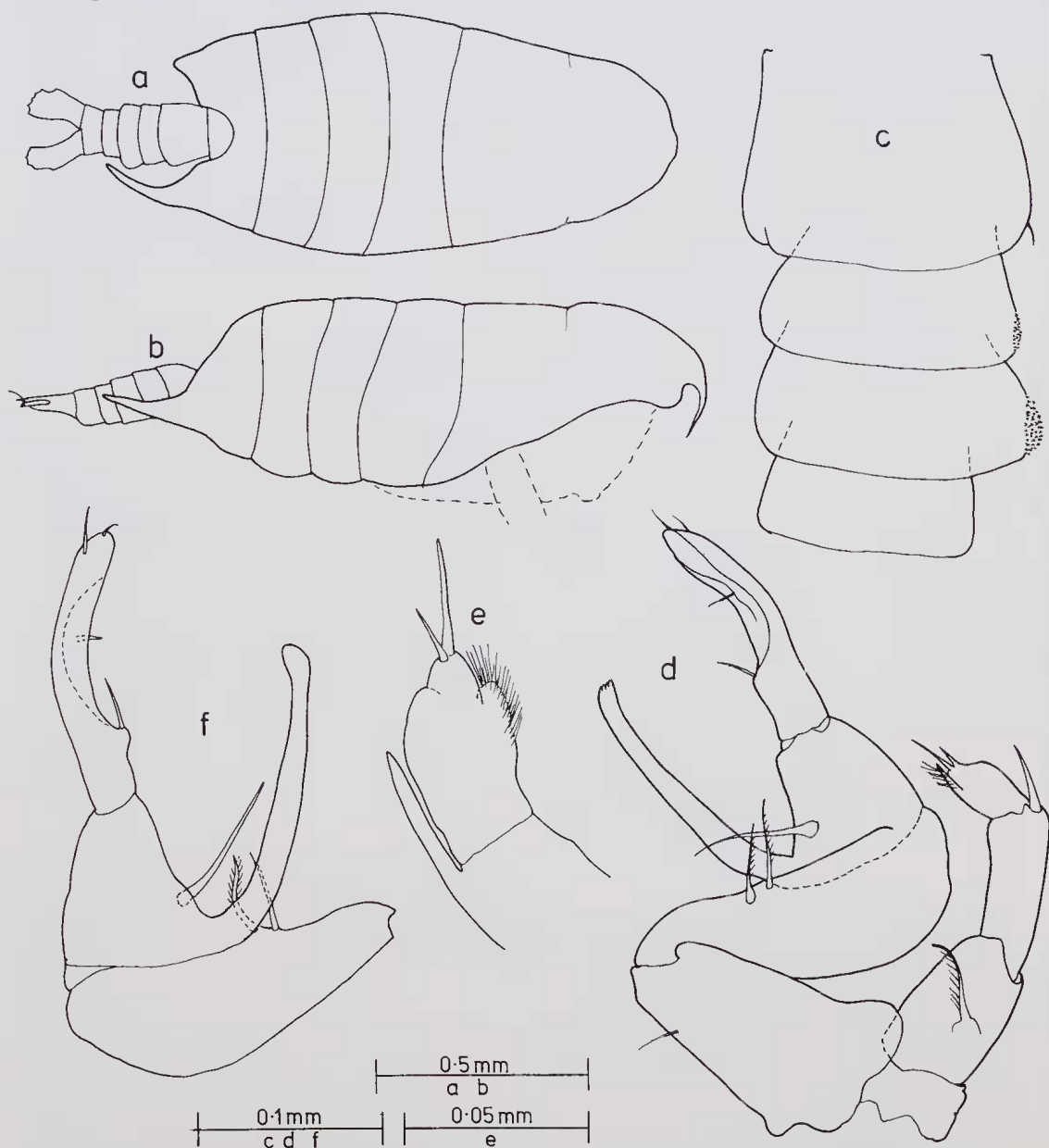


FIG. 2. *Pontellopsis tasmanensis* sp. nov., male. a, dorsal view; b, lateral view; c, urosomal segments 1-4; d, P5; e, terminal portion left P5; f, anterior view, right P5.

fifth thoracic segment lobes (see espec. Giesbrecht 1892).

Sherman (1964) took females of a *Pontellopsis* sp. from the central South-Pacific which could not be identified with published descriptions but which were similar to those of *P. macronyx*. No further details of that species were given by Sherman, but his females must be similar also to those of *P. tasmanensis*.

MALES: *P. tasmanensis* males bear close resemblance to those of *P. scotti*, *P. yamadae* and *P. tenuicauda*.

They differ from *P. scotti* in relative lengths of the 'thumb and finger' (Re2) of the right fifth leg; absence of the central swelling found in the right fifth thoracic segment process of *P. scotti* (Sewell 1932, p.390, fig. 129 b, f).

P. yamadae males are almost twice the size of the present forms (2.5 mm, Mori 1937, p. 99) and differ in some further details: Right fifth leg 'thumb' shorter than 'finger' in *P. yamadae* (slightly longer in *P. tasmanensis*) and without spatulate tip; distal spine on Re1 of left fifth leg very short in *P. yamadae*.

P. tenuicauda is only slightly larger than *P. tasmanensis* (c. 1.65 mm, Mori 1937, p. 98) and, according to Mori's description and figure, closely similar. It differs in that: The right fifth thoracic segment process is longer, reaching to posterior border of anal segment; the second urosomal segment is asymmetrical with pronounced swelling on right side similar to that on the third segment;

a large seta is borne on the base of the thumb; the thumb is not spatulate distally. Mori (1937, pl. 46 fig. 10) did not show any spine distally on the left Re1, but this may have been an omission.

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